

**CURRICULUM VITAE**  
**Alan C. Whitehouse, M.D.**

**HOME ADDRESS:** 28810 North Milan Road  
Chattaroy WA 99003

**OFFICE ADDRESS:** Center for Asbestos Diseases  
308 Louisiana Ave  
Libby, Mt 99523  
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Cell (509) 999-5500  
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**DATE OF BIRTH:** October 12, 1937

**WIFE:** Sandra

**CHILDREN:** Two

**EDUCATION:** Cornell University  
Ithaca, New York  
BA Chemistry, 1959

University of Cincinnati  
Cincinnati, Ohio  
MD 1963

**AWARDS** Borden Undergraduate Research Prize-1963  
Peter T Kilgore prize -1963- for excellence in medicine  
Alpha Omega Alpha - honorary medical fraternity 1963

**INTERNSHIP & RESIDENCY –**  
**INTERNAL MEDICINE:** Duke University Medical Center  
Durham, North Carolina 1963 – 1965

**FELLOWSHIP IN PULMONARY DISEASE & INTERNAL MEDICINE**  
**RESIDENCY:**

University of Colorado  
Denver, Colorado 1967 – 1969

**EXHIBIT**

tabbles

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**MILITARY:**

United States Air Force  
6571<sup>st</sup> Aeromedical Research Laboratory  
Holloman Air Force Base  
New Mexico 1965 – 1967

**BOARDS:**

American Board of Internal Medicine, 1970  
American Board of Pulmonary Disease 1971

**ORGANIZATIONS &  
SOCIETIES:**

Alpha Omega Alpha  
Member Washington State Thoracic Society  
Fellow of the American College of Chest Physicians  
Member of Spokane County Medical Society  
Member of Washington State Medical Society  
Member of Spokane Society of Internal Medicine

**APPOINTMENTS:**

Medical Director Respiratory Therapy Department  
Sacred Heart Medical Center, Spokane, WA, 1969 – 1989

Past President, Washington Thoracic Society, 1979-1981

Tuberculosis Control Officer  
Spokane County Health Department – 1978 – 2002

Board of Directors, Spokane Community College  
Foundation 1984-1988

President, Board of Directors, Spokane Community  
College Foundation 1988-1990

Washington State Department of Ecology Agricultural  
Burning Task Force, 1992

**PRIVATE PRACTICE:**

Continuously 1969-2004 in Spokane (Pulmonary Disease)  
Associated Internists 1969-1995  
Physicians Clinic of Spokane 1995-1998  
Drs. Klock & Whitehouse, P.S. 1998 – 2004  
CARD / Libby, Mt- 2005- present

**LICENSURE**

Active—Washington, Montana  
Inactive- Idaho, Colorado, North Carolina, Ohio

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**PUBLICATIONS:**

Binhammer, R.T., S. Epstein and A. Whitehouse. Development of Parabiosis Intoxication in Rat Parabionts. The Anatomical Record, 1963; 145:503-511.

Whitehouse, Alan C., Jerome Morgan, Janet Schumacher, and Morton Hamburger, M.D. Blood Levels and Antistaphylococcal Titres Produced in Human Subjects by a Penicillinase-Resistant Penicillin, Nafcillin Compared with Similar Penicillins – Presented 1963.

Whitehouse, A.C., Captain, USAF, MC, William K. Brown, Major, USAF, MC, Peter Foster, 1<sup>st</sup> Lt., USAF, Harris F. Scherer. Quantitative Effects of Abrupt Deceleration on Pulmonary Diffusion in Man. ARL-TR-66-12, 1966.

Whitehouse, A.C., C.E. Buckley, III, M.D., H. Nagaya, M.D., and J. McCarter, M.D. Macroglobulinemia and Vasculitis in Sjogren's Syndrome. The American Journal of Medicine. 1967; 43:609-619.

Petty, T.L., M.D., T.M. Harris, M.D., and A.C. Whitehouse, M.D. Management of Acute Respiratory Failure (A Systematic Approach). Annals of Allergy, 1968; 26:405-413.

Whitehouse, Alan C., and Lawrence E. Klock, M.D. Evaluation of Endotracheal Tube Position with the Fiberoptic Intubation Laryngoscope. CHEST, 1975;68:848.

Catton, Christopher K., Jeffrey C. Elmer, M.D., Alan C. Whitehouse, M.D., FCCP, Jeffrey B. Clode, M.D., and Robert Hustrulid, M.D. Pulmonary Involvement in the Eosinophilia-Myalgia Syndrome. CHEST 1991; 99:327-29.

Middleton, D., Miller, A., Whitehouse, A.C. Review of Asbestos Related Abnormalities Among A Group of Patients from Libby, Montana. A Pilot Study of Environmental Cases. June, 2002. ATSDR, Atlanta, Georgia.

Whitehouse, A. Asbestos-Related Pleural Disease Due to Tremolite Associated with Progressive Loss of Lung Function: Serial Observations in 123 miners, Family Members, and Residents of Libby, Montana. Am J Ind Med 46:219-225, 2004

Whitehouse et al, Environmental Exposure to Libby Asbestos and Mesothelioma, AJIM, accepted for publication and in press.

## INVITED PRESENTATIONS ON ASBESTOS

- 1/2/00 Bellingham, Wa. American college of Occupational and Environmental Medicine
- 3/00 Cincinnati, Ohio, CDC meeting on tremolite asbestos disease
- 5/10/00 Washington, DC, NIOSH/CDC Meeting on tremolite disease
- 10/00 Kalispel Regional Hospital Grand Rounds
- 2001 Washington DC, US Senate hearing/ Sen Patty Murray re asbestos diseases
- 11/15/01 Butte, Mt, ASSE Lecture re Libby Asbestos
- 6/24/02 Missoula, Mt. Conference on Asbestos Diseases
- 10/4/04 Wenatchee, Wa. Wa State Public Health Group
- 11/19/04 Tacoma, Wa. ATSDR Meeting
- 6/17/05 West Yellowstone, MT Governor's Conference on Workers Compensation and Occupational Safety & Health
- 2/25/06 Spokane Society of Internal Medicine Update- On Libby Asbestos with Brad Black
- 3/31/06 Grand Rounds, Mt Sinai School of Medicine
- 7/23-24/07 EPA Denver/Libby Epidemiology Meeting

# Asbestos-Related Pleural Disease Due to Tremolite Associated With Progressive Loss of Lung Function: Serial Observations in 123 Miners, Family Members, and Residents of Libby, Montana

Alan C. Whitehouse, MD, FCCP<sup>1,2\*</sup>

**Background** *The community of Libby, Montana has recently been the focus of national attention secondary to widespread amphibole contamination associated with vermiculite mining and processing.*

**Methods** *Patients who had occupational and non-occupational exposure to amphibole asbestos in Libby, Montana were evaluated for progressive loss of pulmonary function.*

**Results** *Of the 123 patients evaluated, 94 demonstrated average age-corrected accelerated loss per year of vital capacity at 3.2%, total lung capacity (TLC) 2.3%, and DLCO 3.3%. All patients all had predominantly pleural changes with minimal to no interstitial disease.*

**Conclusions** *The study demonstrates a progressive loss of pulmonary function in patients exposed to tremolite asbestos. Am. J. Ind. Med. 46:219-225, 2004. © 2004 Wiley-Liss, Inc.*

**KEY WORDS:** tremolite; asbestos; pulmonary function; Libby; vermiculite; environmental; exposure; mining; dust

## INTRODUCTION

In November 1999, it was reported that the community of Libby, Montana was experiencing an epidemic of pulmonary disease associated with occupational and environmental contamination of asbestiform amphibole materials within the community. Investigations revealed that the asbestos contamination was associated with a vermiculite mining and processing operation. Tremolite is an amphibole which has very little commercial value but is a contaminant of the vermiculite ore source in Libby [McDonald et al., 1986a]. This report will reference the high incidence of asbestos related pleural changes and their progression associ-

ated with tremolite exposure from the vermiculite mining and processing activity in Libby. The amphibole of the Libby mine has been characterized by mineralogists as a tremolite-actinolite-richterite-winchite transition fiber and will henceforth be referred to as tremolite [US Geological Survey, Bulletin 2193, 2002].

The vermiculite bed seven miles northeast of Libby was discovered in 1916 and mined initially for asbestos by the Zonolite Corporation and then subsequently for vermiculite. It was mined by W.R. Grace & Co. from 1963 to 1990 and was for a long period of time the world's largest producer of vermiculite.

Vermiculite is a hydrated, laminar, aluminum-non-magnesium micaceous silicate, which when heated expands to between 10 and 20 times its original proportions and is excellent as an insulator, soil conditioner, and fertilizer additive [Moatamed et al., 1986].

In the process of mining and processing this material, W.R. Grace Company had multiple sites in proximity to Libby including an expanding and shipping facility. The ore body contained 21-26% tremolite and was initially pro-

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